



Department of Energy
 Carlsbad Field Office
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JUL 15 2010



Mr. D. K. Ploetz, Manager
 Central Characterization Project
 Retrieval, Characterization and Transportation
 Washington TRU Solutions, LLC
 P.O. Box 2078
 Carlsbad, NM 88221

Subject: Audit Report A-10-05, CCP Inter-Site Transportation Activities for TRU Waste

Dear Mr. Ploetz:

The Carlsbad Field Office (CBFO) conducted the subject audit of the Central Characterization Project (CCP) at the Skeen-Whitlock Building in Carlsbad, New Mexico, and the Lawrence Livermore National Laboratory, June 22-24, 2010. The resulting audit report is attached.

The audit team determined that the adequacy, implementation, and effectiveness of the CCP for conducting DOE inter-site shipments in accordance with the CCP Contact-Handled Transuranic Authorized Methods for Payload Control is acceptable.

If you have any questions or comments concerning the audit report, please contact me at (575) 234-7483.

Sincerely,

Martin Navarrete
 Senior Quality Assurance Specialist

Enclosures

cc: w/enclosures

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U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

AUDIT REPORT

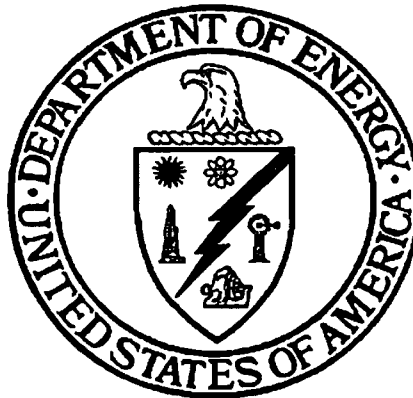
OF THE

CENTRAL CHARACTERIZATION PROJECT
INTER-SITE TRANSPORTATION ACTIVITIES FOR
TRANSURANIC WASTE

CARLSBAD, NEW MEXICO
AND
LAWRENCE LIVERMORE NATIONAL LABORATORY

AUDIT NUMBER A-10-05

JUNE 22 – 24, 2010



Prepared by: Thomas Putnam
Thomas Putnam, CTAC
Audit Team Leader

Date: 7-14-10

Approved by: Ava Holland
Ava Holland, CBFO
Quality Assurance Director

Date: 7/15/10

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-10-05 was conducted to evaluate the adequacy, implementation, and effectiveness of inter-site transportation activities performed by the Washington TRU Solutions LLC (WTS) Central Characterization Project (CCP). The evaluation included CCP transportation activities performed by CCP at the Lawrence Livermore National Laboratory (LLNL).

The audit was conducted June 22 – 24, 2010. The programmatic portion of the audit was conducted in Carlsbad, New Mexico, and the operations portion was conducted at LLNL. The audit team concluded that overall, CCP technical procedures were adequate relative to the flow-down of requirements from the *CBFO Quality Assurance Program Document (QAPD)*, and CCP-PO-401, *CCP Contact-Handled Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) for Inter-site Shipments*.

The audit team concluded that the CCP transportation activities evaluated were satisfactorily implemented and effective, and that the CCP Quality Assurance (QA) Program activities related to transportation were satisfactorily implemented and effective relative to the CBFO QAPD.

The audit team identified one condition adverse to quality (CAQ) in the area of real-time radiograph (RTR), resulting in the issuance of Corrective Action Report (CAR) 10-038 (see section 6.1). During the review of RTR data sheets and associated audio/video media for containers LL85601247TRU, LL85800435TRU, LL85001765TRU, and LL85101429TRU, it was noted that the RTR operator performing the duties of independent technical reviewer (ITR) was the same individual who performed the RTR scan being reviewed.

Two deficiencies, isolated in nature and requiring only remedial corrective action, were identified and corrected during the audit (CDA), as described in section 6.2. One Recommendation was identified during the audit and offered for management consideration, as described in section 6.4.

2.0 SCOPE AND PURPOSE

2.1 Scope

Audit A-10-05 evaluated the adequacy, implementation, and effectiveness of the CCP for conducting U.S. Department of Energy (DOE) inter-site shipments of contact-handled transuranic (CH-TRU) waste in accordance with the CCP CH-TRAMPAC for inter-site shipments. The audit team reviewed WTS/CCP implementing procedures, evaluated supporting documentation, and interviewed personnel.

The evaluation of CCP CH-TRU waste inter-site shipment activities was based on current revisions of the following documents:

- DOE/CBFO-94-1012, *CBFO Quality Assurance Program Document (QAPD)*
- CCP-PO-401, *CCP Contact-Handled Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) for Inter-site Shipments*
- CCP implementing procedures

2.2 Purpose

The audit evaluated the adequacy, implementation, and effectiveness of the CCP for conducting DOE inter-site shipments of CH-TRU waste in accordance with the CCP CH-TRAMPAC.

3.0 AUDIT TEAM

Thomas Putnam	Team Leader, CBFO Technical Assistance Contractor (CTAC)
B.J. Verret	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Rhett Bradford	Technical Specialist, CTAC
Joe Willis	Technical Specialist, WTS

4.0 AUDIT PARTICIPANTS

The individuals at CCP who were present at the pre-audit and post-audit meetings and who were contacted during the audit are identified in Attachment 1. A pre-audit meeting was held at the Skeen-Whitlock Building in Carlsbad, New Mexico, on June 22, 2010. The audit was concluded with a post-audit meeting held at the Skeen-Whitlock Building in Carlsbad, New Mexico, on June 24, 2010.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The audit team concluded that the applicable CCP transportation activities, as described in the associated CCP implementing procedures, were adequate, satisfactorily implemented, and effective in meeting the requirements of the CBFO QAPD and the CCP CH-TRAMPAC. Attachment 2 contains a list of CCP procedures that implement the appropriate CBFO QAPD and CCP CH-TRAMPAC requirements.

5.2 Technical Activities

5.2.1 Transportation Activities

The audit team evaluated CCP packaging operations and Transportation Certification Official (TCO) activities in support of the inter-site shipment program at LLNL. Activities observed included container selection and certification, container integrity inspections and labeling, payload assembly, and TRUPACT-II operations (TRUPACT-II assembly and disassembly, inspection, maintenance, payload loading, leak testing, material control, and transportation). The audit team observed the selection, inspection, and assembly of containers for payload assemblies LL0012, LL0013, and LL0014 for shipment LLIN100005. The audit team observed packaging operations associated with preparing, loading, and leak-testing TRUPACT-II containers 171, 164, and 202 for the same shipment. The review included the marking and labeling of the inter-site shipment of TRUPACT-II containers 131, 146, and 148, destined for the Idaho National Laboratory (INL).

In Carlsbad, the audit team evaluated the inter-site shipping database in the Waste Data System (WDS) used by CCP to maintain characterization information from containers being shipped to the Advanced Mixed Waste Treatment Plant (AMWTP) at INL. The data are collected from the host site and entered into a spreadsheet by a CCP Waste Certification Assistant (WCA). The spreadsheet is used to input the information into the WDS, and a Waste Certification Official (WCO) reviews the data in both the spreadsheet and the WDS to certify the container for use as a payload for shipment in a TRUPACT-II container. Shipments must meet requirements of the CCP CH-TRAMPAC; the CCP WCO indicates requirements have been met by certifying in the WDS that containers are approved for shipment to INL. The WCO also ensures the containers have no current deficiencies written against them by checking the CCP Nonconformance database. Training records were reviewed for WCAs, WCOs, and Transportation Certification Officials (TCOs) to ensure they were trained to CCP-PO-001 and implementing procedures for inter-site shipments.

The audit team observed the WDS database for shipment LLIN10005 from LLNL to INL. The shipment consisted of three TRUPACT-II containers, each containing fourteen 55-gallon drums. TRUPACT-II 171 contained drums LL85800435TRU, LL85234374TRU, LL85238318TRU, LL85301512TRU, LL85901420TRU, LL85900703TRU, LL85901689TRU in the bottom layer, and LL85701384TRU, LL85001762TRU, RO22836, LL85234306TRU, LL85234383TRU, LL85234387TRU and RO18251 in the upper layer. The WDS Shipment Data Report was reviewed to ensure all necessary data were available for use by the WCO and TCO.

No concerns were identified in the CCP Transportation area during this audit.

The audit team determined that overall, the CCP Transportation process is adequate in compliance with upper-tier requirements, satisfactorily implemented, and effective.

5.2.2 Process Knowledge

The audit team examined process knowledge activities for compliance with CCP procedures developed to support elements of characterization called out in the TRAMPAC. The applicable procedure is CCP-TP-401 Rev. 0, *Process Knowledge Compilation for Preliminary Characterization*. A checklist was compiled from the procedure and used by the auditors to assess compliance and collect relevant objective evidence using waste streams generated at LLNL and proposed for shipment to INL for characterization, certification and shipment to WIPP. The Process Knowledge Summary Report, CCP-PK-LLNL-001 Rev. 1, was a primary focus of the review, with additional information in the process knowledge record reviewed and compiled for TRU mixed waste debris stream LL-M001-S5400.

Information reviewed included numerous process knowledge source document summaries, process knowledge attachments 1, 4, 5, 6 and 8, and examples of the resolution of discrepancies in the process knowledge record. Several individual waste containers were selected and the RTR and nondestructive assay (NDA) data packages were examined to assure prohibited items were identified and the required TRAMPAC radiological information was provided. Training of individuals implementing the process knowledge procedure was also verified.

Two concerns were identified during the audit. The first concern resulted in a Recommendation to make non-data-affecting changes to the Process Knowledge Summary Report for clarification (see section 6.4, Recommendation 1). The second concern identified issues in PK attachments 5, 6, and 8.

This concern was corrected during the audit (see section 6.2, CDA 1).

Overall, CCP Process Knowledge activities supporting inter-site shipments were deemed to be adequate with respect to compliance with requirements, satisfactorily implemented, and effective.

5.2.3 Nondestructive Assay

The audit team evaluated NDA Procedure CCP-TP-403 Rev. 4, *Review of Nondestructive Assay Data for Transportation Purposes*. A checklist was compiled from the procedure and used by the auditors to assess compliance and collect relevant objective evidence using waste streams generated at LLNL and proposed for shipment to INL for characterization, certification, and shipment to WIPP.

In addition to the NDA data packages and NDA review checklists for several LLNL waste drums, the audit team examined documentation that supported critical elements of the TRAMPAC radiological properties requirements, such as identification and verification that the NDA techniques/equipment used by LLNL met recognized standards and that the CCP technical reviewer was able to demonstrate compliance

through controlled documentation of all applicable NDA quality assurance objectives (QAOs). The appropriate training of the CCP technical reviewer was also verified.

Overall, the CCP NDA program supporting inter-site shipments was deemed to be adequate with respect to procedural compliance with requirements, satisfactorily implemented, and effective.

5.2.4 Nondestructive Examination

The audit team evaluated the adequacy, implementation, and effectiveness of CCP processes to validate and document packaging configurations, identify waste contents, and screen for prohibited items in waste containers using RTR and/or visual examination (VE).

The VE process for validation of containers for inter-site shipment was not being used at the time of the audit. The audit team reviewed CCP Procedures CCP-TP-402, Rev. 2, *CCP Nondestructive Examination Data Validation for Transportation*, CCP-QP-002, Rev. 28, *CCP Training and Qualification Plan*, and CCP-PK-LLNL-001, Rev.1, *CCP Process Knowledge Summary Report*. The audit team also reviewed training files for three RTR operators.

CCP has processed six shipments of LLNL CH waste for shipment to INL. The audit team reviewed shipment documentation and associated audio/video media for containers from each shipment.

Two concerns were identified during the audit. The first concern was identified during review of RTR data sheets and associated audio/video media for containers LL85601247TRU, LL85800435TRU, LL85001765TRU, and LL85101429TRU. It was noted that the RTR operator performing the duties of ITR was the same individual who performed the original RTR scan being reviewed (see section 6.1, CBFO CAR 10-038).

The second concern was identified during review of CCP-TP-402, Attachment 1, in which waste container LL85234307TRU was listed as being present on disc RTR-0925. Upon review of the disc RTR-0925, the container was not found. The note for the ITR on Attachment 2 stated that the container was incorrectly numbered as LL85401696 and was Title 17 on disc RTR-0926. Changes to the RTR data sheet were made to correct the error and the corrections were verified prior to the end of the audit (see section 6.2, CDA 2).

The audit team concluded that CCP inter-site shipment processes for validation and documentation of packaging configurations, identification of waste contents, and screening for prohibited items in waste containers utilizing RTR were adequate, satisfactorily implemented, and effective.

6.0 CORRECTIVE ACTIONS, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Corrective Action Reports

During the audit, the audit team may identify conditions adverse to quality (CAQs) and document them on corrective action reports (CARs).

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, regulatory compliance demonstration, or the effective implementation of the QA program.

The following CAR was issued as a result of Audit A-10-05.

CBFO CAR 10-038

During review of RTR data sheets and associated audio/video media for containers LL85601247TRU, LL85800435TRU, LL85001765TRU, and LL85101429TRU, it was noted that the RTR operator performing the duties of the ITR was the same individual who performed the original RTR scan being reviewed.

Requirement: CBFO QAPD, Rev. 11, section 5.3.2, B.3: "The reviewer shall be independent of the collection activities."

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant.

Once a determination is made that the CAQ is not significant, the audit team member, in conjunction with the ATL, determines if the CAQ is an isolated case requiring only remedial action and can, therefore, be a CDA. Upon determination that the CAQ is isolated, the audit team member, in conjunction with the ATL, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as CDA according to the definition below.

CDAs – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence. Correction of the deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or not dated (isolated), and one or two individuals that have not completed a reading assignment.

The following concerns were corrected during the audit.

CDA 1

The audit team identified the following issues related to PK attachments 5, 6, and 8 supporting the Process Knowledge Summary Report.

PK attachment 5, Hazardous Constituents, incorrectly identified the expected presence of 1,4-dichlorobenzene and the listing of F003 HWN designations for this waste stream. PK attachment 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging, did not list sealed containers greater than 4 liters and liquids as potential prohibited items and incorrectly identified ignitables, corrosives, and reactives as expected prohibited items in this waste stream. Finally, several container omissions were identified on PK attachment 8, the PK Containers List, which should represent the entire waste stream inventory to date. These issues represented non-compliance with sections 4.4.14 and 4.4.20 of CCP Procedure CCP-PK-401 Rev 0, *CCP Process Knowledge Compilation for Preliminary Characterization*.

These concerns were isolated in nature and were corrected and verified during the audit. Copies of the revised attachments were submitted to and received by CCP records and were given to the CTAC auditor for verification.

CDA-2

During review of Attachment 1 from CCP-TP-402, Waste Container ID LL85234307TRU was listed as being present on disc RTR-0925. When disc RTR-0925 was reviewed, the container was not present. The note from the ITR on Attachment 2 stated that the container was incorrectly numbered as LL85401696 and was Title 17 on disc RTR-0926.

Changes to the RTR data sheet were made to correct the error and the corrections were verified prior to the end of the audit

6.3 Observation

During the audit, the audit team may identify potential problems that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations using the following definition:

No Observations were made during the audit.

6.4 Recommendations

During the audit, the audit team may develop suggestions for improvement that should be communicated to the audited organization. The audit team members, in conjunction

with the ATL, evaluate these conditions and classify them as Recommendations, using the following definition:

Recommendations – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

Recommendation 1

The audit team recommended that the following changes be made for clarification in Process Knowledge Summary CCP-PK-LLNL-001, sections 4.0 and 5.0.

1. Remove the Hazardous Waste Number D027 designation from table 7 and add appropriate language to the justification for removal of D027 and F004, page 88-89.
2. Add sealed containers greater than 4 liters to section 5.3.4.
3. Change most prevalent radionuclide by mass from Pu-240 to Pu-239 in section 5.3.2.3, page 77.
4. Reconcile future generation in section 5.2, Table 3, with future generation in section 4.2, page 16, and add the reference to Table 3.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Listing of Audited CCP Procedures

LIST OF AUDITED CCP PROCEDURES

	Document No.	Document Title
1.	CCP-PO-0401, Rev. 2	CCP Contact-Handled Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) for Intersite Shipments
2.	CCP-QP-002, Rev. 28	CCP Training and Qualification Plan
3.	CCP-TP-401, Rev. 0	CCP Process Knowledge Compilation for Preliminary Characterization
4.	CCP-TP-402, Rev. 2	CCP Nondestructive Examination Data Validation for Transportation
5.	CCP-TP-403, Rev. 4	CCP Review of Nondestructive Assay Data for Transportation Purposes
6.	CCP-TP-404, Rev. 3	CCP Contact-Handled Transuranic Waste Certification and Intersite Shipping Module Data Entry for Intersite Shipments
7.	CCP-TP-405, Rev. 4	CCP Intersite Shipments of Contact-Handled Transuranic Waste